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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,548	10/15/2003	Masanori Koizumi	81751.0067	7700
26021	7590	09/15/2005		
HOGAN & HARTSON L.L.P. 500 S. GRAND AVENUE SUITE 1900 LOS ANGELES, CA 90071-2611			EXAMINER THAI, LUAN C	
			ART UNIT 2891	PAPER NUMBER

DATE MAILED: 09/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/687,548	<b>Applicant(s)</b> KOIZUMI, MASANORI	
	<b>Examiner</b> Luan Thai	<b>Art Unit</b> 2891	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 22-25 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-15, 17, 18, 20 and 21 is/are allowed.
- 6) ☒ Claim(s) 1-9, 16 and 19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/15/03</u> . | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election *without traverse* of Group I, claims 1-21, filed July 06, 2005, is acknowledged. Claims 22-25 are withdrawn from consideration as being directed to non-elected invention.

### *Priority*

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Information Disclosure Statement*

3. The Information disclosure Statement filed on 10/15/03 has been considered.

### *Claim Rejections - 35 USC § 102*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.  
(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 3 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Solberg (6,147,401).

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Regarding claims 1, 3 and 4, Solberg (see specifically figures 1-5) disclose a semiconductor device comprising: a substrate (22) on which is formed an interconnecting pattern (38); a first semiconductor chip (50) provided above the substrate (22) and having a first electrode (54) on a surface facing the substrate, wherein the first electrode (54) is disposed on an edge portion of the first semiconductor chip (50); a second semiconductor chip (64) provided above the first semiconductor chip (50) and having a second electrode (74) on a surface facing the substrate, wherein the substrate has a bent portion (38B) inclined from the first electrode (54) to the second electrode (74), and wherein the interconnecting pattern (38) extends along the bent portion and is electrically connected to the first and second electrodes (54/74).

6. Claims 1, 4, 5, 8, 9, 16, and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Sakurai (6,765,236).

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Regarding claims 1, 4, 5, 8, 9, and 19, Solberg (see specifically figure 5 upside down) disclose an optical module comprising: a substrate (60) on which is formed an interconnecting pattern (62) and an aperture portion (24), an optical chip (10) provided above the substrate (60) and having an optical portion (12) (see figure 1) and a first electrode (14) on a surface facing the substrate, wherein the optical portion is disposed so as to face the aperture portion and the first electrode (14) is disposed on an edge portion of the optical chip (10). Solberg further discloses the aperture portion (24) comprising a lens (30) disposed at a distance (by spacer 32) from the

optical portion (12) of the optical chip (10) and a casing provided so as to hold the lens and also surround at least the optical portion (12) (see figures 1 and 5); a circuit chip (70) provided above the optical chip (10) and having a second electrode (14) on a surface facing the substrate, wherein the substrate has a bent portion inclined from the first electrode (14) of the optical chip (10) to the second electrode (14) of the circuit chip (70), and wherein the interconnecting pattern (62) extends along the bent portion and is electrically connected to the first and second electrodes (14). Solberg also discloses the optical module, as detailed above, is used in an electronic instrument (Col. 7, lines 55+).

Regarding claim 16, although Sakurai does not explicitly teach a circuit board for the optical module, as described above, being mounted on, this feature is taken to be inherent in Sakurai structure since a means for using such module in an electronic apparatus (e.g., digital camera, see figure 6, Col. 7, lines 55-57) is disclosed and it is clear that some kind of circuit board must be present for the optical module mounting thereon and communicating with other circuits.

#### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2, 3, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakurai (6,765,236) in view of Hashimoto (6,486,544).

Regarding claims 2, 3, 6, and 7, Sakurai discloses the claimed invention as detailed above except for a slit being formed in the bent portion of the substrate and a dielectric film covering the interconnecting pattern in the bent portion.

Hashimoto while related to a similar structure design teaches (see specifically figures 10-11) a slit (700/800) being formed in the bent portion of the substrate (710/810) in order to make the substrate being easier in bending (Col. 12, lines 45+), and Hashimoto also teaches a dielectric film (302/820) covering the interconnecting pattern (312) in the bent portion for the purpose of protecting the interconnecting pattern (Col. 10, lines 14+, Col. 13, lines 3+).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to recognize that combining *Hashimoto teachings with Sakurai's invention* would have been beneficial because *Hashimoto teachings* help making the substrate being easier to bend and help protecting the interconnecting pattern of the substrate.

***Allowable Subject Matter***

9. Claims 10-15, 17-18 and 20-21 are allowance.
10. The following is a statement of reasons for the indication of allowable subject matter:

The prior art taken either singly or in combination fails to anticipate or fairly suggest a detail and the structural interrelationship between 2 circuit chips, 2 optical chips and a bent substrate, as being claimed in independent claims 10 and 11.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luan Thai whose telephone number is 571-272-1935. The examiner can normally be reached on 6:30 AM - 5:00 PM, Monday to Thursday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bradley W. Baumeister can be reached on 571-272-1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Luan Thai', with a long, sweeping horizontal stroke extending to the right.

**Luan Thai**

Primary Examiner

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September 9, 2005